



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CHICAGO REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605



LABORATORY  
ACCREDITATION  
BUREAU

ACCREDITED ISO/IEC 17025

Certificate # L2280 Testing

**Date:** 10/2/2017

**Subject:** Review of Region 5 Data for U.S. Steel - Minntac Tailings Basin Area Facility

**To:** Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604

**From:** Amanda Wroble, Chemist  
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

X **AMANDA WROBLE**

Digitally signed by AMANDA WROBLE

Date: 2017.10.02 16:25:33 -05'00'

Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.

**Attached are Results for: U.S. Steel - Minntac Tailings Basin Area Facility**

\_\_\_\_\_  
Data Coordinator and Date Transmitted

**Analyses included in this report:**

Metals ICP-MS (w)



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: U.S. Steel - Minntac Tailings Basin Area Facility  
Project Number: 02DM17  
Project Manager: Dean Maraldo

Reported:  
Oct-02-17 16:21

## ANALYSIS CASE NARRATIVE

### GENERAL INFORMATION

CRL received water samples for trace metals analysis by inductively coupled plasma-mass spectrometry (ICP-MS) on September 14, 2017. The assigned work order(s) and sample numbers to which this narrative applies are listed below:

Work Order (number of samples)	Batch Number
1709003 (16)	B17I021

The designated analyst for these samples, Amanda Wroble, can be reached at 312.353.0375. All holding times were met.

The samples were digested using CRL SOP METALS025, Rev. 3 (EPA Method 200.2) and analyzed using CRL SOP METALS001, Rev. 7 (EPA Method 200.8/SW-846 Method 6020B).

### SAMPLE ANALYSIS AND RESULTS

The data reported herein meet the requirements referenced in the SOP used for analysis and any laboratory specifications stated in the *Quality Assurance Project Plan/Sampling Plan for Environmental Compliance Assessment for U.S. Steel – Minntac Tailings Basin Area Facility* dated August 2017 with a few minor exceptions. Barium was reported from ICP-MS instead of ICP-AES; and chromium, manganese, and molybdenum were reported down to 1.0 µg/L, which was lower than reporting limits specified in the QAPP.

Manganese results for multiple samples exceeded the highest calibration point (500 µg/L). Linearity was demonstrated up to 5 mg/L within the run. Manganese results for these samples that were less than the linearity check were reported from the undiluted samples. The manganese result that exceeded the linearity check (1709003-09) was reported from a fivefold dilution.

All analytes were reported from Run 1 with the exception of arsenic, which was reported from Run 2 due to failure of low level quality control audits (laboratory control blank and reporting limit check) for arsenic.

Several analytes were present in the field blank above their respective method detection limits (MDL). No flags were applied to the data, as CRL has no audit limits for field quality control samples.



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## QUALITY CONTROL

All quality control audits were within CRL limits for the requested analytes or did not result in qualification of the data.



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**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S01	1709003-01	Water	Sep-12-17 09:57	Sep-14-17 13:26
S02	1709003-02	Water	Sep-12-17 10:23	Sep-14-17 13:26
S03	1709003-03	Water	Sep-12-17 10:50	Sep-14-17 13:26
S04	1709003-04	Water	Sep-12-17 11:08	Sep-14-17 13:26
D05	1709003-05	Water	Sep-12-17 11:08	Sep-14-17 13:26
S06	1709003-06	Water	Sep-12-17 11:30	Sep-14-17 13:26
S07	1709003-07	Water	Sep-12-17 11:51	Sep-14-17 13:26
S08	1709003-08	Water	Sep-12-17 14:03	Sep-14-17 13:26
S09	1709003-09	Water	Sep-12-17 15:00	Sep-14-17 13:26
S10	1709003-10	Water	Sep-12-17 15:15	Sep-14-17 13:26
S11	1709003-11	Water	Sep-13-17 09:44	Sep-14-17 13:26
S12	1709003-12	Water	Sep-13-17 09:49	Sep-14-17 13:26
S13	1709003-13	Water	Sep-13-17 09:55	Sep-14-17 13:26
S14	1709003-14	Water	Sep-13-17 10:23	Sep-14-17 13:26
S15	1709003-15	Water	Sep-13-17 11:10	Sep-14-17 13:26
R16	1709003-16	Water	Sep-13-17 12:52	Sep-14-17 13:26



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**Metals by ICP-MS using EPA 200.8 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

S01 (1709003-01)

Matrix: Water

Sampled: Sep-12-17 09:57

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	2.64			1.00	"	"	"	"	Sep-21-17
Barium	31.8			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	U			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	711			1.00	"	"	"	"	"
Molybdenum	U			1.00	"	"	"	"	"
Nickel	U			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

S02 (1709003-02)

Matrix: Water

Sampled: Sep-12-17 10:23

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	1.11			1.00	"	"	"	"	Sep-21-17
Barium	19.7			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	U			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	20.2			1.00	"	"	"	"	"
Molybdenum	1.17			1.00	"	"	"	"	"
Nickel	1.15			1.00	"	"	"	"	"



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**Metals by ICP-MS using EPA 200.8 (modified)**  
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**S02 (1709003-02)**

**Matrix: Water**

**Sampled: Sep-12-17 10:23**

**Received: Sep-14-17 13:26**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Selenium	U			2.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

**S03 (1709003-03)**

**Matrix: Water**

**Sampled: Sep-12-17 10:50**

**Received: Sep-14-17 13:26**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	U			1.00	"	"	"	"	Sep-21-17
Barium	18.2			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	4.21			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	2340			1.00	"	"	"	"	"
Molybdenum	2.05			1.00	"	"	"	"	"
Nickel	3.95			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

**S04 (1709003-04)**

**Matrix: Water**

**Sampled: Sep-12-17 11:08**

**Received: Sep-14-17 13:26**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	U			1.00	"	"	"	"	Sep-21-17
Barium	40.0			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	1.26			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"



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**Metals by ICP-MS using EPA 200.8 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**S04 (1709003-04)**

**Matrix: Water**

**Sampled: Sep-12-17 11:08**

**Received: Sep-14-17 13:26**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Lead	U			0.50	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Manganese	1530			1.00	"	"	"	"	"
Molybdenum	3.87			1.00	"	"	"	"	"
Nickel	2.51			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

**D05 (1709003-05)**

**Matrix: Water**

**Sampled: Sep-12-17 11:08**

**Received: Sep-14-17 13:26**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	U			1.00	"	"	"	"	Sep-21-17
Barium	40.4			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	1.23			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	1540			1.00	"	"	"	"	"
Molybdenum	3.93			1.00	"	"	"	"	"
Nickel	2.47			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"



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Reported:  
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**Metals by ICP-MS using EPA 200.8 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

S06 (1709003-06)

Matrix: Water

Sampled: Sep-12-17 11:30

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	U			1.00	"	"	"	"	Sep-21-17
Barium	22.3			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	5.31			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	1130			1.00	"	"	"	"	"
Molybdenum	U			1.00	"	"	"	"	"
Nickel	3.45			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

S07 (1709003-07)

Matrix: Water

Sampled: Sep-12-17 11:51

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	1.03			1.00	"	"	"	"	Sep-21-17
Barium	U			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	U			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	117			1.00	"	"	"	"	"
Molybdenum	U			1.00	"	"	"	"	"
Nickel	U			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"





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**S07 (1709003-07)**

**Matrix: Water**

**Sampled: Sep-12-17 11:51**

**Received: Sep-14-17 13:26**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Zinc	U			10.0	ug/L	1	B17I021	Sep-20-17	Sep-21-17

**S08 (1709003-08)**

**Matrix: Water**

**Sampled: Sep-12-17 14:03**

**Received: Sep-14-17 13:26**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	U			1.00	"	"	"	"	Sep-21-17
Barium	22.9			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	0.64			0.50	"	"	"	"	"
Copper	2.05			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	217			1.00	"	"	"	"	"
Molybdenum	U			1.00	"	"	"	"	"
Nickel	2.32			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

**S09 (1709003-09)**

**Matrix: Water**

**Sampled: Sep-12-17 15:00**

**Received: Sep-14-17 13:26**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	14.0			1.00	"	"	"	"	Sep-21-17
Barium	125			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	3.08			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	9980			5.00	"	5	"	"	Sep-21-17
Molybdenum	U			1.00	"	1	"	"	Sep-21-17



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**S09 (1709003-09)**

**Matrix: Water**

**Sampled: Sep-12-17 15:00**

**Received: Sep-14-17 13:26**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nickel	2.59			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

**S10 (1709003-10)**

**Matrix: Water**

**Sampled: Sep-12-17 15:15**

**Received: Sep-14-17 13:26**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	U			1.00	"	"	"	"	Sep-21-17
Barium	10.8			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	0.53			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	330			1.00	"	"	"	"	"
Molybdenum	U			1.00	"	"	"	"	"
Nickel	2.37			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

**S11 (1709003-11)**

**Matrix: Water**

**Sampled: Sep-13-17 09:44**

**Received: Sep-14-17 13:26**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	1.52			1.00	"	"	"	"	Sep-21-17
Barium	27.2			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	0.75			0.50	"	"	"	"	"



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**S11 (1709003-11)**

**Matrix: Water**

**Sampled: Sep-13-17 09:44**

**Received: Sep-14-17 13:26**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Copper	U			2.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Lead	U			0.50	"	"	"	"	"
Manganese	522			1.00	"	"	"	"	"
Molybdenum	7.52			1.00	"	"	"	"	"
Nickel	2.18			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

**S12 (1709003-12)**

**Matrix: Water**

**Sampled: Sep-13-17 09:49**

**Received: Sep-14-17 13:26**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	2.12			1.00	"	"	"	"	Sep-21-17
Barium	80.6			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	3.01			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	1980			1.00	"	"	"	"	"
Molybdenum	16.1			1.00	"	"	"	"	"
Nickel	2.18			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

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Water Division, WECA Region 5  
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Chicago IL, 60604

Project: U.S. Steel - Minntac Tailings Basin Area Facility  
Project Number: 02DM17  
Project Manager: Dean Maraldo

Reported:  
Oct-02-17 16:21

**Metals by ICP-MS using EPA 200.8 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

S13 (1709003-13)

Matrix: Water

Sampled: Sep-13-17 09:55

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	1.89			1.00	"	"	"	"	Sep-21-17
Barium	37.9			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	2.41			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	2160			1.00	"	"	"	"	"
Molybdenum	9.45			1.00	"	"	"	"	"
Nickel	2.24			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

S14 (1709003-14)

Matrix: Water

Sampled: Sep-13-17 10:23

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	1.21			1.00	"	"	"	"	Sep-21-17
Barium	10.7			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	U			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	76.2			1.00	"	"	"	"	"
Molybdenum	U			1.00	"	"	"	"	"
Nickel	U			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"



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Project: U.S. Steel - Minntac Tailings Basin Area Facility  
Project Number: 02DM17  
Project Manager: Dean Maraldo

Reported:  
Oct-02-17 16:21

**Metals by ICP-MS using EPA 200.8 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**S14 (1709003-14)**

**Matrix: Water**

**Sampled: Sep-13-17 10:23**

**Received: Sep-14-17 13:26**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Zinc	U			10.0	ug/L	1	B17I021	Sep-20-17	Sep-21-17

**S15 (1709003-15)**

**Matrix: Water**

**Sampled: Sep-13-17 11:10**

**Received: Sep-14-17 13:26**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	1.13			1.00	"	"	"	"	Sep-21-17
Barium	33.7			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	U			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	47.4			1.00	"	"	"	"	"
Molybdenum	U			1.00	"	"	"	"	"
Nickel	U			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

**R16 (1709003-16)**

**Matrix: Water**

**Sampled: Sep-13-17 12:52**

**Received: Sep-14-17 13:26**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	U			1.00	"	"	"	"	Sep-21-17
Barium	U			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	U			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	U			1.00	"	"	"	"	"



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Project: U.S. Steel - Minntac Tailings Basin Area Facility  
Project Number: 02DM17  
Project Manager: Dean Maraldo

Reported:  
Oct-02-17 16:21

**Metals by ICP-MS using EPA 200.8 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

R16 (1709003-16)

Matrix: Water

Sampled: Sep-13-17 12:52

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Molybdenum	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Nickel	U			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"



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Project Number: 02DM17  
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**Reported:**  
Oct-02-17 16:21

**Notes and Definitions**

U Not Detected  
NR Not Reported  
Q QC limit Exceeded